

CLAIMS

What is claimed is:

1. A carrier for a semiconductor die comprising:
  - a substrate having a cavity formed in said substrate, said cavity having a bottom and sidewalls, said sidewalls having a stepped tier;
  - a plurality of electrically conductive contacts on an underside of said substrate;
  - a plurality of electrically conductive tabs disposed on said stepped tier;
  - a plurality of electrically conductive external bond terminals disposed on an edge of said substrate; and
  - a plurality of electrically conductive paths formed in said substrate and electrically coupled between said electrically conductive tabs, said electrically conductive contacts, and said electrically conductive external bond terminals.
2. A carrier for a semiconductor die as in claim 1, wherein said substrate is formed from a multilayer of ceramic substrates.
3. A carrier for a semiconductor die as in claim 1, wherein said substrate is formed from laminates of organic dielectrics.

4. A carrier for a semiconductor die as in claim 1, wherein said substrate is formed from deposited thin film layers.

5. A carrier for a semiconductor die as in claim 1 further including a sealing lid disposed on said substrate and covering said cavity.

6. A carrier for a semiconductor die as in claim 1 further including a plurality of wires electrically coupled between the semiconductor die and the plurality of electrically conductive tabs.

7. A carrier for a semiconductor die as in claim 1 wherein said plurality of electrically conductive external bond terminals disposed on an edge of said substrate are disposed on a ledge in a recess formed in said edge of said substrate.

8. A carrier for a semiconductor die as in claim 1 wherein said plurality of electrically conductive paths are formed from conductive vias and conductive lines in said substrate.

9. A carrier for a semiconductor die as in claim 1 wherein said sidewalls have a plurality of stepped tiers and said plurality of electrically conductive tabs are disposed on said plurality of stepped tiers.

10. A carrier for a semiconductor die comprising:
  - a substrate having an upper surface and a lower surface;
  - a plurality of electrically conductive surface contacts disposed on said upper surface of said substrate;
  - a plurality of electrically conductive contacts on an underside of said substrate;
  - a plurality of electrically conductive external bond terminals disposed on an edge of said substrate; and
  - a plurality of electrically conductive paths formed in said substrate and electrically coupled between said electrically conductive surface contacts, said electrically conductive contacts, and said electrically conductive external bond terminals.
11. A carrier for a semiconductor die as in claim 10, wherein said substrate is formed from a multilayer of ceramic substrates.
12. A carrier for a semiconductor die as in claim 10, wherein said substrate is formed from laminates of organic dielectrics.
13. A carrier for a semiconductor die as in claim 10, wherein said substrate is formed from deposited thin film layers.

14. A carrier for a semiconductor die as in claim 10 further including a cover disposed on said substrate and covering the semiconductor die.

15. A carrier for a semiconductor die as in claim 10 wherein the semiconductor die has a plurality of semiconductor die contacts electrically connected to said plurality of electrically conductive surface contacts.

16. A carrier for a semiconductor die as in claim 10 wherein said plurality of electrically conductive external bond terminals disposed on an edge of said substrate are disposed on a ledge in a recess formed in said edge of said substrate.

17. A carrier for a semiconductor die as in claim 10 wherein said plurality of electrically conductive paths are formed from conductive vias and conductive lines in said substrate.

18. A method for using a semiconductor die carrier for a semiconductor die, said semiconductor die carrier having a plurality of electrically conductive metal contacts and a plurality of electrically conductive external bond terminals including steps of:

testing the semiconductor die through the plurality of electrically conductive metal contacts; and

operating the semiconductor die in a normal operating mode through the electrically conductive external bond terminals.

19. A method for using a semiconductor die carrier for a semiconductor die, said semiconductor die carrier having a plurality of electrically conductive metal contacts and a plurality of electrically conductive external bond terminals including steps of:

testing the semiconductor die through the plurality of electrically conductive metal contacts;

examining the plurality of electrically conductive metal contacts to determine if the electrically conductive metal contacts are damaged; and

operating the semiconductor die in a normal operating mode through the electrically conductive external bond terminals when the electrically conductive metal contacts are damaged.

20. A method for forming a substrate for a semiconductor die carrier including steps of:

forming a cavity within the substrate having a stepped tier;

forming electrically conductive tabs on said stepped tier;

forming a plurality of electrically conductive contacts on an underside of the substrate;

forming a plurality of electrically conductive external bond terminals disposed on an edge of the substrate; and

forming a plurality of electrically conductive paths in the substrate electrically coupled between said electrically conductive tabs, said electrically conductive contacts, and said electrically conductive external bond terminals.

21. A method as in claim 20, wherein the step of forming a plurality of electrically conductive external bond terminals disposed on an edge of the substrate further includes the step of:

forming a recess in said edge of the substrate on which said plurality of electrically conductive external bond terminals are disposed.

22. A method as in claim 20, wherein the step of forming a plurality of electrically conductive paths in the substrate further includes the steps of:

forming conductive vias in the substrate; and

forming conductive lines in the substrate.

23. A method for forming a substrate for a semiconductor die carrier including steps of:

forming electrically conductive tabs surface contacts on an upper surface of the substrate;

forming a plurality of electrically conductive contacts on an underside of the substrate;

forming a plurality of electrically conductive external bond terminals disposed on an edge of the substrate; and

forming a plurality of electrically conductive paths in the substrate electrically coupled between said electrically conductive surface contacts, said electrically conductive contacts, and said electrically conductive external bond terminals.

24. A method as in claim 23, wherein the step of forming a plurality of electrically conductive external bond terminals disposed on an edge of the substrate further includes the step of:

forming a recess in said edge of the substrate on which said plurality of electrically conductive external bond terminals are disposed.

25. A method as in claim 23, wherein the step of forming a plurality of electrically conductive paths in the substrate further includes the steps of:

forming conductive vias in the substrate; and

forming conductive lines in the substrate.